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Ivan S. Kavrukov
Cooper & Dunham LLP
1185 Avenue of the Americas
New York, NY 10036

EXAMINER

HO, ALLEN C

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/941,250

Applicant(s)

SMITH ET AL.

Examiner

Allen C. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Negrelli (U. S. Patent No. 6,200,024 B1) in view of Stenfors (U. S. Patent No. 6,309,102 B1).

With regard to claim 1, Negrelli disclosed a system positioning a digital flat panel x-ray receptor for a variety of diagnostic x-ray protocols, comprising: at least one x-ray source (44) selectively emitting an x-ray beam; a digital flat panel x-ray receptor (48) having an imaging face; a downwardly extending, ceiling-supported column (106) supporting the receptor for movement to different positions up and down along a downwardly extending axis, rotating (100) about the same or a different downwardly extending axis, and rotating (108) about a lateral axis transverse to the axis along which the receptor moves up and down; the receptor and at least one x-ray source being mounted on separate supports for movement independent of each other; and the at least one x-ray source and the receptor being juxtaposed for directing the x-ray beam to the imaging face of the receptor for a variety of diagnostic x-ray protocols.

However, Negrelli did not teach an upwardly extending, floor-supported column supporting the receptor. Instead, Negrelli disclosed a system with the opposite arrangement comprising: an upwardly extending, floor-supported column supporting the x-ray source; and a

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downwardly extending, ceiling-supported column supporting the receptor. Furthermore, Negrelli did not teach protocols in which the source is above the receptor and protocols for lateral imaging in which the source and receptor are at matching level.

Stenfors disclosed a C-arm x-ray examination apparatus that could scan a patient laterally (Fig. 3).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to switch the positions of the receptor and the x-ray source, since a person in the art would recognize that these two configurations (and the protocols) are completely equivalent as long as the x-ray source and the receptor are directed toward each other and the receptor intercepts the x-ray beam after it has traversed the patient; it is purely a design choice. Furthermore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include protocols for lateral imaging in Negrelli's system, since a person would be motivated to configure the system for as many C-arm protocols as possible (column 2, lines 59-63), which is less expensive than purchasing new equipment.

3. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hauck *et al.* (U. S. Patent No. 4,501,011) in view of Roos *et al.* (U. S. Patent No. 6,041,097).

With regard to claim 2, Hauck *et al.* disclosed a system positioning an x-ray receptor for a variety of diagnostic x-ray protocols, comprising: an x-ray source (22) selectively emitting an x-ray beam; an x-ray receptor (24), which is an image intensifier, having an imaging face; a first track supporting (50), for movement along the first track (72), a first downwardly extending, telescoping column (42) that in turn supports the source for movement up and down, rotating about a first up-down axis (column 3, line 47), and rotating about a first lateral axis (58)

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transverse to the first up-down axis, to thereby position and orient the x-ray beam for a variety of x-ray imaging protocols; a second track supporting (52), for movement along the second track (82), a second, downwardly extending, telescoping column (44) that in turn supports the receptor for movement up and down, rotating about a second up-down axis (column 3, lines 56-57), and rotating about a second lateral axis (60) transverse to the second up-down axis, to thereby position and orient the imaging face of the receptor to match the position and orientation of the x-ray beam for the variety of x-ray imaging protocols, including protocols in which the source is above the receptor (column 2, lines 9-18) and protocols for lateral imaging in which the source and receptor are at matching levels (column 2, lines 5-8); the first and second tracks being spaced apart from each other to allow movement of the first column along the first track that is independent of movement of the second column along the second track (column 4, lines 1-2).

However, Hauck *et al.* did not disclose a system that employs a digital flat panel x-ray receptor.

Roos *et al.* taught that a digital flat panel x-ray receptor has many advantages over an image intensifier (column 5, lines 24-33). For example, digital flat-panel receptors are free from geometric distortion that exists in image intensifiers.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ a digital flat panel x-ray receptor in the system disclosed by Hauck *et al.*, since a person would be motivated to avoid the defects that exist in an image intensifier, which might cause misdiagnosis.

With regard to claim 3, Hauck *et al.* disclosed a system positioning an x-ray receptor for a variety of diagnostic x-ray protocols, comprising: an x-ray source (22) selectively emitting an

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x-ray beam and positioning the beam at positions and orientations for a variety of x-ray imaging protocols, and a supporting structure (42) for the x-ray source; an x-ray receptor (24), which is an image intensifier, having an imaging face; a track supporting (52), for movement along the track (82), a downwardly extending, telescoping column (44) that in turn supports the receptor for movement up and down, rotating about an up-down axis (column 3, lines 56-57), and rotating about a lateral axis (60) transverse to the up-down axis, to thereby position and orient the imaging face of the receptor to match the position and orientation of the x-ray beam for the variety of x-ray imaging protocols, including protocols in which the source is above the receptor (column 2, lines 9-18) and protocols for lateral imaging in which the source and receptor are at matching levels (column 2, lines 5-8); the track being spaced from the supporting structure for the x-ray source to allow movement of the column along the track that is independent of movement of the x-ray source or the support thereof (column 4, lines 1-2).

However, Hauck *et al.* did not disclose a system that employs a digital flat panel x-ray receptor.

Roos *et al.* taught that a digital flat panel x-ray receptor has many advantages over an image intensifier (column 5, lines 24-33). For example, digital flat-panel receptors are free from geometric distortion that exists in image intensifiers.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ a digital flat panel x-ray receptor in the system disclosed by Hauck *et al.*, since a person would be motivated to avoid the defects that exist in an image intensifier, which might cause misdiagnosis.

Response to Arguments

4. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Ohlson (U. S. RE37,614 E) corresponds to reissue application no. 09/590,633.
- (2) Ivan *et al.* (U. S. Patent No. 6,031,888) disclosed a fluoroscopic imaging apparatus that can be rotated 90° for lateral imaging.
- (3) Mazess (U. S. Patent No. 5,228,068) disclosed an x-ray densitometer that comprises a C-arm for lateral imaging.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (703) 308-6189. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (703) 308-4858. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Allen C. Ho
Examiner
Art Unit 2882

ACH
July 10, 2003


EDWARD J. GLICK
Supervisor EXAMINER
TECHNOLOGY CENTER 2800